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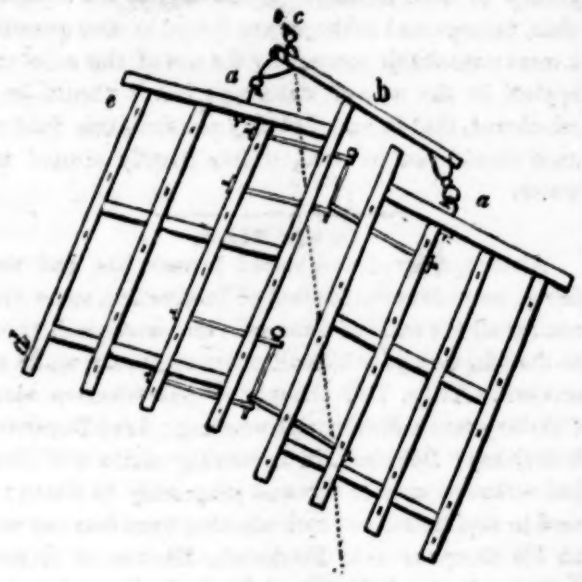
THE GENESEE FARMER.

SATURDAY, JUNE 8, 1839.

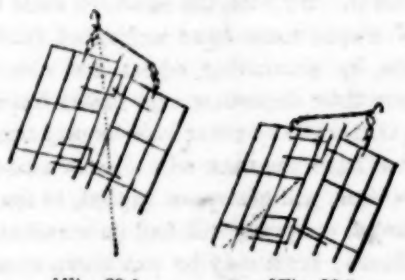
DUTCH BUTTER.

Large quantities of butter are annually imported into England from Holland, and some from the same country has occasionally found its way into this. It is justly celebrated for its superior quality, and its power of resisting decomposition, or its not being liable to become rancid. In the Holland dairies, every thing is conducted with a system and neatness, from the feeding of the cows to the completion of the butter, worthy of all imitation and praise. That there is any thing in the climate or pastures of Holland that renders their dairy products superior to those of the rest of Europe, or to ours, is not to be supposed; the difference is clearly in the manipulation, and were our butter and cheese in general, made with as much skill and care as in Holland, we might successfully compete with the Dutch in the West Indies and other markets, to which our butter will now barely pay the cost of transportation. According to the report of Mr. Mitchell, made to the Highland Society of Scotland, the process in the Dutch dairies is substantially as follows:—The milk, when taken from the cow, is poured into large earthen pitchers and placed in a vat of cold water, which quickly reduces the temperature. It is then placed on shelves until the cream separates, when it is taken off and placed in vessels for churning. In these it is first allowed to become a little soured, and then the churn is half filled with the cream. In the best dairies, churning is performed daily; the system being so arranged, that a supply is constantly in readiness. In winter, a little boiled warm water is added to the cream to give the proper temperature previous to churning; and in very warm weather, it is sometimes submitted to the cold bath to reduce the heat. The butter, when taken from the churn, is put in a shallow vessel and carefully washed with pure cold water, and then worked with a slight sprinkling of fine salt, whether intended for rolls or for barreling. The butter is considered best, when the cows have been at grass about three weeks; it is then delicious—is made into fanciful forms of animals, pyramids, &c., and stuck over with fragrant flowers, and sells as high as sixty or seventy cents per pound. When intended for packing, the butter is worked up twice or thrice a day, with soft, fine salt, for three days, in a shallow tub; there being about two pounds of this salt used for fourteen pounds of butter. After this thorough preparatory working, the butter is then hard packed in thin layers into casks made perfectly sweet and clean The wood preferred is oak, smoothed carefully inside. Three or four days before they are used, the casks are filled with sour whey, and this stands until they are emptied and cleansed for the packing of the butter. It is clear, from this description, that independent of the perfect neatness observed in every part of the process, the excellence of the Dutch butter, and the ease with which it is kept in its original sweetness when packed, is owing to the manner in which it is freed from the least particle of buttermilk, by the first washing and the subsequent repeated workings, as well as to the perfect incorporation of the salt by the same process.—There are many of our American dairies that produce superior butter; but as a whole, that offered in our markets is a miserable article, destitute of that rich flavor belonging to good butter, and owing to the great amount of buttermilk left in it, utterly unfit for keeping. We believe a reform in these respects, would add materially to the profit of all those who should attempt it, as well as add greatly to the comfort of the great mass of purchasers and consumers.

IMPROVED HARROW.



[Fig. 28.]



[Fig. 29.] [Fig 30.]

The above figures represent a valuable form of the harrow, which was brought from England by John Baker, of Macedon, Wayne Co., N. Y. The drawing was made from one in the possession of William R. Smith, of the same place, on whose farm it has been thoroughly tested.

The advantage of a harrow in two parts, connected by hinges, is well known; this harrow combines that advantage with another very important one, which may be best understood from the description. Through each forward cross bar, are inserted the two draught hooks *a a*, (Fig. 26,) to which is attached, at its two ends, the whipple-tree *b*. The inside of this whipple-tree has a casing of iron running its whole length, formed by a continuation of the irons at the ends, and upon this iron casing the draught-hook *c*, slides freely from end to end. The advantage of this contrivance is, that in turning from right to left, and from left to right, the hook *c* changes its position accordingly, and the line of draught across the harrow is consequently changed; so that when the horses turn about ninety degrees, the harrow, instead of turning ninety also, turns only about twenty degrees. This greatly diminishes the labor of turning, which, in small fields, is often very inconvenient. The mode in which the line of draught is changed, may be easily understood by inspecting Figs. 27 and 28. In Fig. 27, the harrow is represented in the same position as in Fig. 26, and the line of draught is shown by the dotted line; in Fig. 28, the harrow is in precisely the same position, but the line of draught is changed, by the sliding of the hook, about seventy degrees.

It will be seen by examining the hinges, represented in Fig. 26, that they are so constructed as to admit of sliding, about ten inches, so that each side of the harrow is brought successively about five inches ahead of the other, as the draught-hook *c* changes respectively. This may be perceived in Figs. 27 and 28; the former representing the left side in advance, and the latter the right side.

From the preceding description, it will be evident, that in turning the team round 180 degrees, or through half a circle, the harrow turns but 110 degrees. This lessens the labor of turning so much, and changes the position of the harrow so little, that land, by its use, may be most conveniently harrowed backwards and or wards, by turning alternately to the right and left, and so proceeding regularly from one side of the field to the other, instead of passing round the circumference of successive "*lands*" in the usual way.

Another important advantage, is the number of its teeth. This, on lands that are not very stony or rough, is very important. Passing but once over the ground, usually reduces it to a great degree of fineness; and there are few seeds, except those which need *ploughing* in, which are not buried deep enough by this harrow, where the soil has been well pulverized by it.

The dimensions are the following:—The timber for all the principal bars, (which should be of the strongest and toughest wood,) is 2 inches square; length from *d* to *e*, 4 feet 1 inch; length of forward cross bars, 2 feet 10 inches; length of whipple-tree *b*, 2 feet 11 inches. The teeth, which are forty in number, are one-half by three-quarters of an inch, and eight inches long. By being placed so as to run chiefly *edge-wise* in the soil, they have greater strength for their weight, and weaken the timber less than when made square. This harrow, which is kept well painted, has been used much for a year, on sandy, gravelly, and even stony ground, and appears as strong and firm as when first made. Its superior lightness contributes to its durability. J.

School Libraries.

The publishers of the Massachusetts School Library, have issued a catalogue of the books, or a part at least, of those intended to be issued for the use of schools in that state and elsewhere, and we are happy to say, it contains many that are such as cannot be otherwise than useful, and in our opinion better adapted, as a whole, for district libraries than any collection we have yet noticed. The publishers are getting out their works at the rate of about 600 pages a week, and they advise those intending to purchase, to wait until their collection can be issued. We have before remarked, that the law of this state was faulty in *obliging* the districts to make purchases before the market could be supplied with proper books; in this state, the law forbids waiting, and publishers have been obliged to do the best they could in order to supply the demand. For the future, neither publishers or districts will have any excuse, if the best works, and those adapted to the wants of those interested in such libraries, are not on hand to meet the succeeding distributions of the public money.

The Boston series of books, we perceive, is to contain a volume, prepared in a popular style, on each of the following subjects:—Astronomy, Natural Philosophy, Chemistry, Botany, Geology and Mineralogy, American Trees and Plants, Science applied to the Arts, Practical Agriculture, Human Physiology, Paley's Natural Theology with Bell's and Brougham's Notes and Introduction, Pursuit of Knowledge under difficulties, Book of the Constitution, with a History of the United States, several volumes of Lives of Distinguished Men, with other works of interest. The prices will of course be reasonable.

We are glad to know that those publishers in New-York, who are engaged in preparing volumes for libraries in this state, are making such arrangements as will ensure suitable works, and such as the public voice demand, for the next year's distribution. We are not displeased to see there is like to be some competition in this business, as the public are likely to be furnished

with better works, and those got up in better style and at much less prices, than if their production was left to the ordinary routine of publishing.

WATERING PLANTS, GRASSES, &c.

In watering plants, the operations of nature should be as closely followed as possible; and this will ever prevent its being applied in excessive quantities, by pouring it upon them; or chilling the plants by its application, while they are relaxed and basking in the heat of a summer sun. The water, too, should never be used as taken directly from a well or spring; the temperature of these is usually too low, and water exposed to the air imbibes always more or less of the gases that are useful to plants.

Experience proves that water is essential to the prosperity of plants; and during our hot summers, and especially in the cultivation and transplanting of hot-house or forced plants, the necessity of occasional watering is obvious to all. To have such watering produce the best effect, the temperature should be moderate; the water applied at evening, or when the sun is covered with clouds; and the leaves as well as the roots should feel the shower distilled upon them. If there is any danger of a frost, exposed plants should never be watered towards evening, as from a known law of nature, what little heat plants contain, is rapidly carried off by evaporation, and hence the worst frosts, and those producing the most injury, occur after rains. Sunshine stimulates the vessels of plants to great activity; and according to Dr. Darwin, "if this stimulus of heat be too greatly and suddenly diminished by the effusion of cold water, or by its sudden evaporation, their vessels refuse to act, and death ensues; exactly as has too frequently happened to those who have bathed in a cold spring of water, or taken large draughts of ice fluid, after having been heated by violent and continued exercise during a hot day."

The addition of the carbonaceous nutritive matter from a dung-hill, or the drainings of the yard, has an excellent effect on many plants; greatly increasing the rapidity of their growth, and thus hastening their maturity. Water and heat appear to be the grand agents of vegetation, and one cannot be very much increased without a corresponding increase of the other, unless at the expense of the health and vigor of the plant, or the rendering the fruit worthless. Newly planted fruit trees, or indeed any other trees, should be watered, as it greatly tends to secure their living, and promotes their growth. Trees are essentially benefited in a dry time, by throwing water over them with a large syringe or engine; as such an effusion washes the pores of the tree, cleanses the leaves from dust, and invigorates its energies. A fig tree, suspended in a room at Holy Rood Palace in Scotland, flourished for a number of years with no other nutriment than what was derived from a daily watering of the foliage and trunk. Water operates favorably when thrown upon trees, in preventing the increase and spread of caterpillars and other insects.

The practice of watering meadows and grass lands has not been generally practiced in this country, but we think that on light soils, where water courses can be brought to bear, it might be done with great advantage. If springs of water are to be turned on to meadows, it may be necessary, however, to determine in the first place that the water contains no ingredients injurious to vegetation, which is sometimes, though very rarely, the case.

There has as yet, owing to the natural fertility of our soils, the neglected state of our agriculture, and the little capital usually invested by the farmer, been but few efforts made to introduce among us the mode of watering grass lands with liquid manures, which are of so much consequence in the best cultivated countries of Europe. Where it has been, as in some of the highly cultivated farms of Pennsylvania and Maryland, the effect has been most beneficial. By this method, large cisterns or vats are so constructed as to receive all the urine from the stables, and the liquid matter of the farm yards. The fluid is pumped from these reservoirs into hogsheads placed in carts drawn by oxen, and conveyed to the fields where wanted. To the cart is attached a box or trough twelve feet in length, the under side perforated with holes, and when on the ground to be watered, a plug is drawn from the hogshead, which permits the water to flow into the trough, by which, as the cart passes along, it is distributed over the surface to the width of the apparatus used. In some cases, these vats or cisterns are so constructed, that the liquid flows from them directly into the hogsheads, and the labor of pumping is avoided. When it is recollected that urine is one of the most active and valuable of manures, owing to the great quantity of various salts it contains; it is clear that such a watering of lands must contribute greatly to their fertility. According to Sir John Sinclair, turneps and cabbages are forced in their growth in a most remarkable manner by the use of this substance, applied in the way of watering; but it should be remembered, that in very hot dry weather, this fluid manure should not be used, unless greatly diluted with water.

MANURES.

Almost every distinguished farmer has had some hobby, some favorite method of cultivation, some panacea for all the evils of poor soils and worse cultivation, to the adoption of which all other things are made subservient. Thus, Tull thought of pulverization alone; Coke's system is drilling and weeding; Lord Dundonal's is draining; Bakewell, in improving cattle and sheep, had reference only to size and propensity to fatten; he used to say, he did not care whether there was any wool on his sheep or not; Frederick, Elector of Saxony, went for the wool alone, and the flocks he produced are without a rival. With us, the hobby of some lies in the rotation of crops; some have unlimited faith in renovating soils, by alternating wheat and clover; while others place their dependence on roots; but it may be remarked, that while all other hobbies may occasionally be ridden too hard, the man who directs a considerable part of his time, and his spare capital, to the preparation and use of manures, will find no occasion to regret the expenditure; for it may be put down as a truth in agriculture, that the character of a farm, and the farmer, may be pretty accurately known, by the quantity of manure prepared and used upon the premises.

There are few things in which American agriculturists exhibit a greater want of forethought and good husbandry, than in the general neglect of the means they possess for retaining or increasing the fertility of their soils. Animal manure is, in all cultivated countries, the great agent for promoting fertility, and for replacing those ingredients in the soil essential to vegetation, but which are gradually exhausted by cropping. Whatever opinion we may form of the philosophical theories of the present day, on the subject of nutrition in plants, the fact that animal manures increase fertility is doubted by none, and it is the practice and not the theory with which the farmer should be most interested. Now, as ever, the stable and the barn-yard, are the places to which the farmer looks for his supply of manure; and it is to these points that his attention should be directed, when wishing to increase the quantity and the value of this essential article.

One of the greatest losses the farmer sustains, is by allowing the urine of his stables, and the wash of yards, to run to waste. Urine, as is now well known, is one of the most active fertilizing agents, and the leachings of the yard contain a very large proportion of the salts that accumulate in such a depository. How often do we see the drainings of the yard and stables, black with decomposed matter, and rich with the most fertilizing of salts, passing off into the highway, or some stream, as though the owner considered them a nuisance of which he was glad to be rid in the best way he could. There are two ways in which this egregious waste may be prevented, and these most essential parts of animal manure saved for the use of the farm. The first and the best way, where the yard will admit of it, is to cover the yard with such a quantity of vegetable earth, turfs, swamp muck, wash of the roads, or any light absorbent earth, as to retain the urine and moisture of the manure, and prevent its escape. Where, from the quantity of the manure, or other causes, this drain cannot in this way be prevented, a large vat, or what is still cheaper, a simple excavation may be made in the earth, and the drain conducted into that. If the earth of the pit is too absorbent, it may be clayed; but unless it is very porous, it will soon cease to absorb the fluid conducted into it. This reservoir should never be allowed to overflow, but when filled, should be taken out, and by means of a cheap apparatus drawn by oxen, distributed over the surface of grass lands, or those intended for crops.

But we hear some one objecting, that all this may be well enough, but it will cost a good deal, and take much hard work to cart this earth to the yards, or distribute the contents of the reservoir. So it will; and what permanent benefit is acquired that does not cost the farmer hard work. The only question is, whether the work is profitably expended; if so, the more work there is done on a farm the better. If a farmer, by employing one man for six months of the year, in converting the manure of his yards into compost, by placing in it a few hundred loads of earth, turf, muck, &c. to absorb the moisture of the yard, and be thoroughly mixed by the feet of cattle during the winter, or in distributing daily the proceeds of the reservoir, should only add enough to the proceeds of the farm to pay his man so employed, he might consider the work done as the most profitably expended of any on his farm, since the benefits are not confined to a single year, or crop, but to many successive ones. There is not capital enough in the shape of labor, usually employed on our farms; and we doubt not, there are many farmers who complain they are losing money by hiring one man, would make money by employing two. Not, indeed, unless the capital or labor was well directed, and the same may be said of capital employed in any other way.

Farmers, in general, have little idea of the improvement that might be made in this respect, or the amount of their available means in the matter of manures.—There are many farmers in our country, who think they do wonders if they use 150 or 200 loads of manure annually, when they could, and should, if they would consult their own interests, use 500 or 1000 in the same time. It does not require a large stock to give 500 loads of compost or manure to the farm, if business is managed right. A single example in proof must suffice, though hundreds might be adduced. Mr. Wm. Clark, Jr. of Northampton, Mass. "keeps an average stock of eight swine, three horses, and eight oxen and cows, and from this stock he made from June, 1837, to June, 1838, nine hundred and twenty loads of first rate manure, as his excellent crops most abundantly testified. Mr. Clark used for compost 300 loads of sods, and 247 loads of swamp muck. His yards were supplied with cornstalks and refuse hay during the winter, and brakes and weeds in the summer, and cleared out twice during the year."

It is an honor to a man to labor when his efforts are calculated to ensure success; but to labor hard, when working tends to no profitable result, betrays a want of that forethought and intelligence which should characterize the American farmer.

Important Suggestion.

A writer in the Farmers' Register, on the subject of Vegetable Physiology, after describing the structure and functions of the roots of plants, proceeds as follows:

"With these remarks, I will venture to propose what I should consider the best plan for cultivating potatoes. Let the ground be prepared in the ordinary way; lay the potatoes in the bottom of the furrow, and cover them to the depth of three or four inches, with coarse manure or leaves, and then with two or three inches of earth. After the stalks are six or eight inches above ground, cover all except their ends under in the same manner; and perhaps this process may be advantageously repeated a third time; after which they should be suffered to go to seed. The first covering should, unless the land be very rich, consist in part of manure, in order to furnish nourishment to the plant; the second and third may consist of straw or leaves, as the principal object is to keep the earth loose, and protect the tubers from the action of the sun."

The propriety of this suggestion, respecting the best method of planting potatoes, will be apparent when it is recollected that the tuber or potato never grows on the true roots, but on what may be termed underground branches, or shoots from the main stems. So true is this, that De Candolle in his experiments on this root, by a peculiar management, was able to produce them on the stem itself. By increasing the number of these underground shoots, while we take care that the supply of nourishment shall be ample, we of course increase the number of potatoes, and the quantity of the crop. If the reasoning of the writer is well founded, ample hilling of potatoes must be useful, while the greatest care must be taken not to disturb either the true roots, from which the whole derive its nourishment, or the shoots which are to originate the tubers. To obviate this danger of disturbing the roots or shoots, Gen. Barnum, of Vermont, well known as one of the most successful potatoe growers in the United States, is in the habit of carting rich earth on to his potatoe fields, and putting a shovel full on each hill when the plants have gained a few inches in height. Potatoes require a soil or bed that is loose for the tubers to form in, and moisture and exclusion from light is indispensable to their perfection. In a hard ground they cannot grow, in a dry poor one they will not.

APHIS, OR COCCUS.

A great number of very different insects pass under the name of Aphis, yet as they are all distinguished by feeding on the juices of plants, and are consequently all injurious to the cultivator of the soil, nice distinctions of character can be of little value to the general reader. The true aphis dwell together in society on various trees and plants, of which they suck the juices. They walk very leisurely, and cannot leap, and the males only having wings. Their distinguishing mark is the two horn like tubes projecting from their posterior extremity, and from which the transparent, honey like fluid so much sought after by ants, is exuded. The liquor is given out voluntarily on the solicitation of the ant; a want made known by gentle touches with the antennæ of the ant. The whole process may be witnessed by any one who will take the trouble to examine a colony of aphis on a tree or plant, while subject to the visitations of the ants. The aphis of the common thistle is usually large, and offers to those who have no magnifying glasses, the best opportunity for observing the manner in which it pumps the juices of the plant, and at the same time furnishes the ant with food.

Another insect, generally classed with the aphis, is the apple-tree louse, as it is called; but it is not strictly an aphis; it belonging to the genus Coccus of Linn. These insects are the *gallinsecta* of Reamur; and to them belongs the cochineal insect; the one that produces gall nuts, and the one that does so much injury to the apple-tree. They are known by the scale-like appearance they exhibit when on the tree or plant to which they affix themselves, and by their never moving from that place during their lives. According to Wilson, the oviposition of the eggs is the greatest peculiarity in the history of this insect.

"Though excluded from the body, the eggs do not appear externally, but are made to pass beneath the abdomen, and between it and the cotton tapestry before alluded to. [The apple-tree coccus of the common kind, has no cotton, though the lanata has.] In proportion as the insect becomes empty, the lower surface of the abdomen approaches the upper one, so as to leave beneath the body a kind of arch or receptacle for the eggs. The perfect female never stirs a step in the course of her life, but having laid her eggs she dies, and her body shrivels up and hardens, and thus forms a protection and covering for the incipient young. These, as soon as hatched, work their way from beneath the dead body of their parent, making their escape from the posterior extremity of the shell."

At this time they are so small as to be invisible to the naked eye, but they gradually advance to the tender wood of the last year's growth, where they fix themselves; though sometimes they fix themselves immediately beneath the shell of the parent, and thus lengthen the shell, by additions which are plainly perceptible.

We have had an opportunity this spring, aided by a powerful microscope, of observing the manner in which the changes effected in this insect by the season, succeed each other. During the winter, the eggs, to the number of fifteen or twenty, lie safe under the shell of the dead coccus, and may at any time be observed by scraping some of them from the bark of the apple-tree and placing them under the microscope. The eggs are then nearly round. Their hatching is of course greatly dependent on the temperature; but by the first of May, in this latitude, some of them will begin to exhibit signs of vitality. By detaching some of the shells on the first of May, we found that but few of the young had any vitality, the greater part exhibiting nothing to indicate that they were ever to possess the power of locomotion. Under the glass they resembled plump kernels of wheat in shape, though like most other larvæ of that kind, they were partially transparent, and with perfectly smooth exteriors. Some few, however, had their legs partially developed, and their sucker could plainly be seen. By the middle of the month, we found them escaped from the shell in some instances, while in others they were still without apparent vitality, and had not left the covering provided them by nature.

That the apple-tree coccus, or *coccus mulus*, is injurious to the tree which it has selected as its favorite, cannot be doubted by any one who has witnessed the scrubby, crooked, *hide-bound* appearance of a nursery or orchard infested to any considerable degree with this insect. Though, from the minuteness of the insect, the quantity of sap abstracted cannot amount to any great quantity, yet an examination of the bark, pierced by a million of suckers, shows that such a state is incompatible with a healthy, vigorous growth; and the shells, or bodies of the defunct tribes glued down as they are, shut out all atmospheric action from the pores of the bark, thus aiding in producing disease. To remedy these difficulties, destroy the coccus, and give a smooth, healthy bark to the tree, washing it with quicklime or white-wash has been found very effectual. Lye will kill all the insects it touches, but the lime forms a coat over the whole that suffocates those that may be under the shells, loose bark, or otherwise exempt from contact. We have tried it with success, and have never known a tree injured in the least by the use of lime, and should consider it as one of the safest and easiest remedies that could be adopted for the destruction of this pest of the orchardist.

National or Sectional peculiarities of Character.

We make the following extract from a private letter of an esteemed correspondent in Pennsylvania, as the sketch of sectional peculiarities of character is both graphic and just. In allusion to some remark of ours respecting the probability of our legislature doing something for the cause of agriculture, the writer says:—

"Poor old fashioned Pennsylvania! I wish I could say as much about our hopes of interesting her legislature in the cause of agriculture, as you have expressed about yours. Her old German wheat growers think they know as much as any body about their own business, and would laugh at the legislature, should they presume to offer instruction by means of agricultural schools. From New-York I look for better things; her population are a more enterprising race; have more disposition for untried schemes, and like the inhabitants of New England, are disposed to turn, as they conceive, the gifts of Providence to the best account.—They seem, indeed, in these respects to be a very different race of men from their Anglo-Saxon ancestors; and it would be a very interesting inquiry to trace the causes which have imparted to them constitutional habits and national peculiarities so different in the first place from the round rubicund face, square built, stalwart race from which they sprung; and in the last place, from the *settled, unchangeable* line of conduct that appears to be peculiar to the old English and German yeomanry. From some cause which I am not now prepared to explain, the same causes have not operated to effect the same changes in Virginia, Maryland and South Eastern Pennsylvania, where the habits of stability derived from German and English ancestry prevent us from adopting the locomotive peculiarities of our yankee brethren, and hinder us from moving onward in the same march of enterprising activity. Our population universally set a high value upon antiquity; pride themselves upon the number of generations that have passed away on the same farm, or in the same neighborhood; and look upon their solid, substantial brick, and limestone dwellings, or rather antique castles, with the superstitious veneration that an English baron feels when looking on the patrimony, the title to which may be traced in the herald's office through lives of kings.

If you ask an old resident of the lower counties of Pennsylvania to sell you his farm, he first casts a look of surprise, as if he thought your intellect in an unsettled state; and upon recovering from this, asks you with no little indignation, if you consider him so mad as to sell his patrimony? I have many, and many times over, known them to refuse double, and even treble the actual value of their property, because it had been the abiding place of their fathers for several generations. It is not often you get an opportunity of making a yankee such an offer twice. He starts his son into the wilderness with a thousand dollars in his pocket, 'with the wide world before him, and Providence his guide.' 'Never,' he says, 'let me see your face again until you make it ten thousand.' He departs from the paternal mansion, builds himself a house, either log or frame, and when a favorable opportunity offers of making by it, sells out and commences improvements anew. In this way I have known them sell three, four, and even five times, and every time commence anew in the forest.

Each of these habits has its advantages. The love of country is more encouraged by the first, and is more intense; but it is a limited or exclusive patriotism that seldom takes a wide and liberal scope. While the last is a Cosmopolite, it says, 'the world, the world! is my home.' Not knowing where to choose after so many efforts, such a man wanders off into new regions, and furnishes abundant reason to believe, that if the Anglo-Saxons had confined themselves to New England, the splendid countries from St. Louis and Kaskaskia to Arkansas and Louisiana would have been, under the French and Spanish systems, a wilderness for ages to come."

PULVERIZING THE SOIL.

The celebrated Tull maintained that good crops might be produced without limit, by simply keeping the earth finely pulverized; and, though that theory is untenable, no one can doubt that much of the fertility of the soil is owing to its being in such a state that its particles can be exposed to atmospheric influence; a process termed æration. All atmospheric air contains more or less of the gases necessary to vegetation, particularly carbonic gas, and this is absorbed by the water of the earth, and in that way is made available as food for plants. Where animal manures are used, large quantities of ammoniacal gas are generated and thrown off into the air; and this substance, one of the most energetic of vegetable stimulants, is also absorbed by the earth with which it comes in contact. This is proved by the non-escape of these gases from piles of manure, when covered by earth during their fermentative process. This absorbing process is always in proportion to the surface exposed to the action of the air.

The surface of a square inch of earth, and consequently its absorbing power, may be increased a million fold by pulverization, and hence the advantage and necessity of stirring the earth, and rendering it fine, becomes apparent. Other circumstances being equal, the goodness of any crop will be in proportion to the care used in keeping the earth fine, and in a proper absorbing state. In no crop is this made more plain, than in that of Indian corn. In this crop, almost every thing is depending on the after culture; and it is the month of June that usually determines the value and fate of the corn crop. If the farmer allows the earth to become consolidated and dense on the surface; if he goes over his corn once and thinks he has done wonders in the way of cultivation; if his hoes are resting when they ought to be brightened by scarifying and pulverizing the soil; he may dream of a crop, but his expectations will usually end in dreams. The influence of such pulverization is not less perceptible in the garden. It is idle to spend time in putting seeds into the earth, unless we are willing to give them sufficient attention to enable the plants to come to maturity. In all cultivated crops that admit of such a process, the maxim of the farmer should be, stir the earth frequently, keep the surface light and loose, and vegetation will not only be rapid, but the crop in most cases abundant.

COMMUNICATIONS.

On the Phenomena of Vegetation.—No. 3.

Decay is a property common to all the works of creation, but death and reproduction are peculiar to the organic kingdoms alone. To each individual of the vegetable as well as of the animal world, nature has assigned a definite vital existence, liable to be affected by unfavorable accidents, but of a certain duration, in the same species, under the same circumstances. Thus in a forest, and in good soil, the Elm will continue to exist for 500 years or upwards, but, in an unfavorable situation, it will die within a century. In either case its dissolution is preceded by a gradual decay.

The investigation of the facts which indicate youth, maturity and decay in vegetables is a study of no common interest, especially when it is combined with a review of the various means for multiplying and protracting the existence of the *variety* with which nature or science has furnished us. In my former Essays, vegetables were distinguished into, 1st. Annuals and Biennals. 2d. Perennials with Bulbs &c. periodically* renewed. 3d. Perennials with persistent roots only, and 4th. Perennials with both roots and stems persistent.

Perhaps this arrangement is not strictly unexceptionable, for some plants, (as the *Nasturtium*, &c.) which are annual with us, are perennial in more favored climates. Others (as the Kidney bean—*Phaseolus vulg.*) which we treat as annuals, are actually perennial tubers, while Florists can, by a little manipulation bestow upon most annuals and biennals an existence somewhat analogous to that of Perennials. Still the arrangement is the most satisfactory of any with which I am acquainted, and certainly far preferable to that which would divide the vegetable tribes into Trees, Shrubs and Herbs.

Adhering therefore to it, our attention will in the first place, be naturally directed towards the annuals and biennials. It has been already observed that they, "having employed a certain time in preparing the necessary nutriment, at length develope a flower stem, supporting the various organs of fructification, and after bringing these to perfection, they perish for ever." Such doubtless are the ordinary circumstances adducing natural death, but occasionally as in the Stock-gilliflower, the Wall-flower, &c., we meet with exceptions to this rule. These, in the double varieties, do not not always exhaust the prepared nutriment by their inflorescence, (for they produce no seeds to bring to perfection,) and they are thus enabled, for sometime to protract a sickly existence. But in addition to this circumstance, the Pink, Carnation, &c. (*Dianthus*) by resting upon the surface of the ground, not unfrequently throw out secondary roots at their superior joints, and thus produce new plants, or rather subdivisions of the parent plant.

Profiting by this hint, florists have devised several expedients, variously denominated *laying*, *slipping*, *cutting*, *piping*, *&c.*, for the purpose of multiplying plants of select varieties of annuals, but more especially biennials, and all dependant upon the same principle, viz., the tendency of nature to exude roots at a joint or leaf bud. By performing these operations before the plant begins to blossom, and on shoots that evince no intermediate tendency to do so, varieties are continued from year to year, and, as already said, annuals and biennials receive a sort of perennial existence.

But to this artificial existence, as it may be termed, the general rule likewise applies. Even it cannot be protracted beyond a limited number of years. The plants cease to produce shoots fit for cuttings, and it is no uncommon circumstance to hear an enthusiastic florist, who has grown gray in his fascinating pursuit, complain that notwithstanding the greatest care and attention, he has lost favorite varieties of Carnations and Wall-flowers, the delight and glory of his youth, but which he cannot discover to be now in existence.

Passing next to the perennials with bulbs, &c. periodically renewed, the same remark offers itself. What has become of the costly Tulip, the possession of which was esteemed equal to a fortune, and of the darling ranunculus, the pride of our grandfathers, and for which, believe them, the boast of our modern gardens are mere analogies. They are amongst things that have been. They have shared the fate of nature. They no longer exist.

The period of adolescence in this class continues generally from two to three years, and careful florists are studious to prevent the plant from blossoming during this stage of its exisience. The reason may be inferred from my former Essay. Measures adopted to check the fructification, (of which flowering constitutes the primary step,) naturally tend to ensure an increase of the prepared nutriment, and consequently of the size, or, as it is termed, the strength of the bulb.

This bulb or tuber is, at the termination of its adolescence, large, full and healthy, and in favorable circumstances will continue so, producing flowers, seeds and healthy bulbs with offsets, or (technically) *babies* for a certain number of years, or to speak more accurately for a definite number of reproductions. But a change at length occurs. The offsetts or babies are gradually diminished, both in size and number, until they disappear entirely. The bulb itself, although it continues to flower, becomes shrivelled, cankered and sickly. Its dissolution is on the eve of being accomplished. It disappears.

Nor is this the fate of the original bulb alone; for its offsetts or babies participate in the same limited existence. These are generally esteemed its descendants, but they are produced with all the indications of maturity or dissolution appertaining to their presumed parent, and they are, in point of fact, not the descendants but the mere subdivisions of the original plant, partaking equally in all the organic and constitutional defects inherent in the latter at the time of their separation. They of course share its fate; and in this manner perish not only the pride of the flower garden,—but the boast of the Green Isle itself, the peerless potatoe. *Sic transit gloria mundi!*

But mistake me not. It is not said that the offsetts, the scions or cuttings of the original plant must necessarily cease to vegetate at the period of its dissolution. It is indeed said that they participate in the limited existence pertaining to the original at the time of their separation, but it must be kept in remembrance that this existence "is liable to be affected by unfavorable accidents," and consequently that the offsetts which may have been exempted from such accidents, whether arising from cultivation or otherwise, will exist for a longer period, than those which have not been so fortunate.

Let us here pause, and admire that wonderful dispensation of providence, which is so conspicuous in this, as in all the works of creation. While the bulb was in a state of maturity, and consequently might be expected to enjoy a prolonged existence, it was multiplied by numerous offsetts or babies, but whenever it fell into decay, when

> "Its days were dwindled to the shortest span,"

it ceased to produce offsetts which would necessarily participate in its fate, and exerted its whole remaining energy in the maturity of seeds, by which the species might be continued by the production of new varieties. This reflection leads naturally to a consideration of the means by which the bulb, &c. may be strengthened, and the existence of the variety consequently prolonged.

Measures adapted to impede the fructification, tend to strengthen the bulb or tuber. A very accurate experiment, (for which the Highland Society of Scotland awarded its Honorary Silver Medal,) was made by Mr. Murray of Aberdona in 1833, to determine to what extent the tuber of the potato might be thus benefitted. The result, as detailed in the prize Essays of the Society for that year, was as follows. Supposing the tubers of the potato on which the fruit was allowed to ripen, to be 100,—those from which the blossoms were plucked when in full flower were 105.77,—and those from which they were plucked in the bud, 116.66.† No careful Florist therefore will permit the flower of his Tulip or Ranunculus to continue on the stem for a single day after it begins to fade. It is by the judicious application of this principle that any variety is strengthened and its existence lengthened out.

But, in my former Essays, I alluded to a very ingenious method by which the French Florists have succeeded in prolonging this existence in appearance, to at least double the time limited by nature. It has been ascertained that bulbs and tubers, if kept dry and cool, and protected from the operation of the atmosphere, may be preserved unaltered for years, at least as far as regards their vegetating powers. Thus may the potato be kept in a dry sand pit, if buried upwards of four feet under the surface. Taking advantage of this circumstance, Florists have arranged their bulbs and tubers in two sets, and each of these they allow to vegetate and flower every alternate year only. By this means they protract the existence of their choice Tulips and Ranunculuses to double the time they would naturally exist, while, at the same time, they display in their gardens the same varieties every successive year.

During adolescence, the perennials with persistent roots only, gradually augment their store of prepared nutriment. This period continues from two to five years, according to the species of plant. Of this class it has been already remarked, that they are supposed to possess a more protracted existence than the last, and when it is remembered that their persistent part is concealed under ground, and rarely exposed until the plant is on the eve of dissolution, it is no matter of surprise that we should possess few facts illustrative of the process of its decay. Every Horticulturist however is aware that, in the course of time, his plantations of Asparagus, Artichokes, Rhubarb, Strawberries, Raspberries, &c. decay and become worthless, and on being dug up, the, heart of the plant displays a lifeless, inert, and often putrescent mass. In some individuals (the Strawberry for instance,) nature herself protracts the existence of the species by runners, and art can do so on others by dividing the roots, but these divisions are found in no instance to possess the vigor of new plants raised from seeds, or in other words, they partake of the stage of natural, if not casual decay at which the original has arrived, and sooner or later will cease to admit of subdivision.

But I now hasten to the important class of ligneous plants, or perennials with both roots and stems persistent. This class may be distinguished by two great divisions, the 1st. comprising trees of Hard Wood,—and the 2d. trees of Soft Wood; the latter comprehending the *Coniferæ*, the other all other exogenous trees and shrubs.

1st. *Hard Wood.*—Every one knows the indications of youth or adolescence in trees of hard wood. The branches are vigorous,—those at the summit being more elongated than others;—the annual shoots are strong and long;—the foliage, falling late in autumn, is large, green and abundant, especially towards the top, the bark is smooth and unbroken, and in color nearly uniform. This period of adolescence in the larger trees lasts until the 20th or 25th year, during which time the vigor of their growth augments every successive year. It then continues, *cæteris paribus*, nearly uniform until the age of 60 or 80. During this time the tree is in the prime or maturity. The head becomes rounded,—the annual shoots gradually diminish in length,(the highest not pushing the bud,) and the branches become more horizontal. The leaves are expanded

* I have here substituted the word *periodically* for *annually*, as a species of Orchis takes two years to bring its roots to perfection, although, by having three sets of tubers in progress, it is enabled to show flowers every year. My observations are meant to apply to exogenous plants principally, but I am aware that here, as elsewhere, I have cited examples of Monocotyledons. It appears doubtful however if according to the theory here propounded, these examples can be properly deemed to be endogenous.

† The result is given in the prize Essays in bolls and bushels, but for the purpose of rendering it more generally intelligent, I have here reduced it to hundred parts and decimals. The whole quantity of potatoes subjected to experiment exceeded 500 bushels.

earlier in spring, and fade sooner in autumn, and the lower leaves are tinged of a deeper hue than the upper. From the age of 60 or 80, the annual growth of the tree begins sensibly to diminish,—the upper branches die,—the bark is cracked across the trunk, and separates from the wood or becomes loaded with moss and lichen. All these are sure indications of decay. But when *fungi* appear,—when the trunk is marked with black or red spots,—or when sap flows from fissures in the bark, certain death is fast approaching.

2d. *Soft Wood.*—This class exhibits many of the same general appearances. When young it is of very vigorous growth, which, as in hard wood, augments each successive year. The branches of the *Coniferæ* at this period arrange themselves into somewhat of the form of a pine-apple. Those adjoining the main shoot towards the top, assume an inclination of about 45°, but the lower branches gradually diverge more and more from the perpendicular. As the tree advances in years, the latter become decumbent and finally break off, leaving the stem bare from one third to two thirds of its whole length. The annual growth of the terminal shoots of both stem and branches is successively less and less vigorous, and, when the tree has attained maturity, the top assumes a bushy appearance, the adjoining branches are nearly horizontal, and the lower ones decumbent. This decumbency is very remarkable in the American White Cedar, (*Cupressus Thuyoides*) the branches of which however are not so apt to sever from the stem as those of the *Pinus abies.* The decay of soft wood is not gradual like that of hard timber, but the tree dies instantaneously, the termination of its vital existance being accompanied by the separation of the bark from the wood. The *Coniferæ* are more rapid in growth, and by no means so remarkable for longevity, though, for timber, equally so for durability as the hard wood.

It has been said that the Elm will continue to exist for five centuries, or upwards, but there are individuals which nearly double this age. Perhaps the most authentic record which we posses of the duration of vegetable life,is that of a Chestnut tree which grew at Yamworth in England. It was planted in the year 800, and in the reign of Stephen, in 1135, was made a boundary and called the *great* Chestnut tree. In 1759, at the age of 959,the trunk measured 52 feet in circumference, and it bore nuts which produced young trees.

But, although we cannot authenticate its age, it would be an unpardonable neglect to omit here to notice in elucidation of the appearance of trees in a state of decay, the father of the forest, the venerable "*Castagno di cento Cavilli,*" on the Carpinetto of Mount Etna. This vegetable Nestor, (for it is supposed to be the oldest tree in the world,) appears to consist of five large, and two smaller trees, which, from the circumstance of the bark and boughs being all outside, are considered to have been one trunk originally. Some say the two smaller ones are saplings, but the peasants affirm that they rise from one root. The largest trunk is 38 feet in circumference, and the circuit of the whole 196 feet, just above ground. It still continues to bear rich foliage, and much small fruit.

Subdivisions of ligneous plants may, in general, be formed either by laying or cutting, or by budding or grafting. No instance has come to my knowledge of any successful attempt to propagate the *Coniferæ*, by either method: but many of the species of hard wood may be propagated by layers or cuttings, and all by one or other of the various modes of budding or grafting. The former process has been noticed, when treating of the annuals and biennals, and it has been here explained to depend upon a certain tendency evinced by nature, to protrude roots at a leaf bud. It is not my object at present to describe the manipulation or art of budding and grafting. This falls more immediately within the province of the practical gardener. Our business now is with the theory of the operation, and it will be sufficient to explain that the desired object of the process, is the transfer of a portion, containing the vital principle of one plant, (or in other words of a germ or bud, which is the depository of this vitality,) to the receptacle of prepared nutriment in another plant, in such a manner as to enable them to combine, and the bud, so inserted, to appropriate the nutriment contained in the selected receptacle, and to benefit by the state of efficiency of the roots of the stock at the time of the operation. Grafting is therefore tantamount to a subdivision of the original plant, under the most favorable circumstances.

But if it be true that nature has assigned a definite vital existence to each plant at the time of its production, it is perfectly obvious that every one of these subdivisions must partake of that natural existence, as it is possessed by, and limited in the original at the moment of their separation, and consequently, that their vital functions cannot be protracted beyond it. And, again if the extinction of this vitality be always preceded by a gradual decay, it is equally clear that each subdivision must exhibit the symptoms of this decay more or less modified by the favorable or unfavorable circumstances attending its new position.

Experience however is almost necessary to convince one fully of the truth of this theorem. When resident in Britain, I attempted to renew a species of apple, by transferring grafts from the old original trees, which were evidently falling fast in naturally decay, to the most promising of my seedling stocks, of not less than seven years growth. By pruning the old trees, healthy scions, (at least such to appearance,) were obtained, and for the first two or three years the grafts pushed vigorously,—suddenly, however, without any apparent cause, the trees became *crowned*, *i. e.* the top shoots died,—the buds ceased to push, and the whole evinced unfailing symptoms of premature senility; and when I left Britain they were evidently speeding to decay along with the original trees. The circumstance of their vigorous growth at the outset must be ascribed to their appropriation of the prepared nutriment contained in the stock. When this failed, the scions were of course left, (if I may use a simile,) entirely to their own exertions for their subsequent progress, when the palsied hand of age checked their career. W. Colvill.

Esquesing, U. C.

EDUCATION OF FARMERS.—No. 2.
Elements of Science.

Mr. Tucker—In a few general hints I recently presented to your readers on the subject of education, I took the ground, that no other class of the community possessed so many inducements, or so many facilities, for becoming men of sound and extensive knowledge, as farmers. I will now avail myself of your politeness, for pointing out, or suggesting, the modes of obtaining and improving those facilities, for the benefit both of themselves and all other classes of American citizens.

If I am not greatly mistaken, the first elements and the foundation work, in any rational system of education, not for farmers merely, but for intellectual, moral and immortal beings of every class, and age, and country, are those simple and beautiful principles, or laws of nature, which the Creator has ordained and perpetuated for the government of his physical, intellectual and moral Universe—laws, which in no case, either in business, morals or politics, can be violated with impunity—laws so simple, that the little child can comprehend them; so beautiful, that all children, in the simplicity and sprightliness of their nature, are ever eager to pursue them, as their richest source of delight, and yet so perverted and abused as to be shrouded in darkness or mysticism, by many of our most learned professors and profoundest philosophers; and what is still more to be regretted, they are daily and almost constantly violated by farmers, mechanics, and all other classes engaged in the industrious, productive pursuits of life; but in no case without injury to themselves, and frequently with wide spread and lasting evils to the world and to posterity.

In obedience to some one or several of these laws combined, the water drop steadily pursues its course from the mountain to the ocean, aiding, perhaps, in its course the motion of thousands of wheels, shuttles and spindles, and at length mounting again into the atmosphere, and again, by the gentle dew or the violent thunder storm, it is deposited upon the earth, when it is again ready to commence a new circuit through the earth, ocean and atmosphere. By others of these laws, metals and the various productions of the mineral kingdom, are, by the hand of the mechanic or farmer, so combined, transformed or modified, as to be scattered through society in the character of a thousand different implements for the domestic or useful arts, or to spread over the earth a rich abundance of corn, wheat, fruit, and other vegetables almost innumerable, for sustaining the life or gratifying the appetite of man or beast.

Regarding strictly the laws established by the Creator, for the regulation and continuance of the vegetable creation, the farmer will make the best selection of plants or crops to cultivate, preserve or improve the quality of his seed, adopt the best rotation of crops, place his various plants upon their appropriate soils and situations, in the most effectual manner possible, guard against failures from the varieties of climate and the changes of weather, also the ravages of insects, and insure to himself, under all circumstances, the richest reward for his labors.

The laws which regulate and sustain the animal creation, are perhaps still more important and beautiful, though not less simple or easy to be understood, than those instituted for the government and the uses of the mineral and vegetable kingdoms. By the observance of these laws, health is invigorated, animal strength applied to the greatest advantage, the best selection of animals made for food or labor, and the proper measures adopted to destroy or avoid those portions of animate creation, which so often blast the fairest prospects of the farmer.

Not merely the productions of the three great kingdoms of nature, and of the laws established to govern them, but the relations they sustain to each other, are of the utmost importance in laying broad and strong a foundation for the education of any class of the community, but in a special manner that of farmers. The relations existing between the earth or soil, and the vegetables it sustains; also, those existing between vegetables and the animals they support or destroy, are no less important or interesting, than those simple, original principles designed for each as individuals. Indeed, the laws by which the one is governed or sustained, not unfrequently embraces or implies those designed for the regulation of the other.

By a single example, some idea may be formed of the beautiful and wonderful economy and contrivance, instituted by the Creator and Benefactor of the Universe, for the support and happiness of his creation. The whole animal creation, by the process of respiration, are constantly consuming oxygen, or the vital portion of the atmosphere, which, except for some provision for replenishing, must eventually render the air we breath incapable of supporting animal life. This provision is found in the vegetable kingdom, which, by the process of vegetation, decomposes carbonic acid, or fixed air, and separates from it the oxygen, which was consumed by respiration, in the formation of the same carbonic acid, which is again decomposed by the vegetables it supports; thus the animal and vegetable creation, in obedience to laws established for both, are performing important services for each other.

But the most important of all laws, instituted for the government of the three great kingdoms of nature, are those designed for the use of a moral universe—for the intercourse of moral beings with each other, and for directing and aiding rational creatures to perform faithfully and constantly, the duties they owe to their Creator. These laws, so clearly, fully and beautifully deve-

loped in the volume of inspiration, and by natural religion, it is the first duty of every farmer, as of every rational and immortal being, to understand and observe.

By strictly observing the laws here glanced at, and established by the Creator for the government and happiness of his creatures, whether in the ordinary pursuits of business, in the intercourse between man and man, or between the creature and his Creator, not only farmers, but every other class of the community, will obtain the greatest possible certainty of success in any lawful undertaking, and of answering the purposes of their existence. But before these laws can be observed, they must be understood. To understand them is the great object of education, without regard to the books they study, the schools they attend, the systems they adopt, or the callings which may be pursued. And every book, and every system of instruction, and every pursuit, which diverts attention from the immutable and eternal laws of God to man, or has a tendency to violate or obscure them, defeats the great purposes of education and of human existence.

That farmers, and every farmer, may, without expense or trouble, but with a high degree of pleasure and profit, become familiar with the great and fundamental laws which govern all created things, I will undertake on some future occasion to illustrate more minutely, to such as may wish to examine the subject. In the mean time, as ever, I am with high esteem,

Yours, JOSIAH HOLBROOK.

IMPROVEMENT OF MIND—No. 6.

"Worth makes the man;" and to secure that worth, the passions must be under the control of right reason. The principles, derived from the cultivation of the mind, must be correct, and the impulsive power of the passions must be directed by their influence. The tempest of the soul is more awful than that of the elements; for it desolates the soul itself, and is a war of its own capabilities upon the very essence of its being. In one, it is phrenzy; in another, it is tyranny. The man of passion tramples on another's rights, and riots in the luxury of wrongs; or, he mangles his own person and tears his hair, or falls a victim to sudden disease, the result of the over-action of his bodily frame. *He that ruleth his spirit*, enjoys more peace and receives more confidence. It would be curious to see the connections of the passions and their influence on each other. As presented in part by Dr. Good, they form a subject of great interest. The knowledge, too, may be no slight aid or feeble inducement to their proper government, and the due elevation of the mind.

"HOPE is the second main stream that emanates from DESIRE. Try the world, examine your own hearts, and you will agree with me that this is its source. Hope must spring from desire, and cannot exist without it. As it rises in the scale, it becomes trust or confidence; and confidence, according to the alliance it forms with other feelings or affections, gives birth to two very different families. United to a vigorous judgment and an ardent imagination, it produces courage, magnanimity, patience, intrepidity, enterprise; combined with vanity or self-love, the complex and mischievous brood of self-opinion, impudence, audacity and conceit.

"Hope, however, is not produced singly. It is a twin passion, and its twin sister is Fear. Hope and fear spring equally from desire—*hope* of gaining the desired object, and *fear* of losing it. They run the same race, though with varying degrees of strength, and terminate their career in the antagonist extreme points of fruition or despair; the powers of hope growing gradually more intense as it approaches the former goal, and those of fear, as it approaches the latter.

"Fear does not always cease with fruition. Uncertainty and change are so strongly written on all earthly enjoyments, that even in the firmest possession we have still fear of losing them; so that we can seldom say, *what a man hath, why doth he yet fear for?* Fruition without fear is reserved for, and will be, the great prerogative of a higher state of being.

"Fear, however, like hope, in its progress through life, forms other alliances than that which springs during its infancy. Combined with a sense of failure and imperfection in our powers, it takes a right direction, and produces caution, timidity, bashfulness, diffidence, respect and complaisance; united to friendship, love or complacency, it produces gratitude, devotion, reverence, veneration and awe, which are only different degrees of the same feeling; and hence the term *fear*, in the sense now used, becomes an apt and beautiful type of every religious affection—of desire, as love, gratitude, zeal, devotion and awe.

"The connexions of fear, like those of hope, are of a bad as well as of good character; united to a judgment that measures its powers amiss, and entertains too mean an opinion of them, it degenerates into irresolution, doubt, cowardice and pusillanimity. Combined with a restless and irritable imagination, it begets suspicion, jealousy, dread, terror; and terror, combined with hate, gives birth to the passion of horror. It is in this last character that *Fear* is chiefly employed by the dramatists; and it is to this Collins has entirely confined himself in his celebrated Ode upon the subject:

> Thou to whom the world unknown,
> With all its shadowy shapes is shown;
> Who seest, appall'd, th' unreal scene
> When fancy lifts the veil between,—
> Ah! Fear; ah, frantic Fear!
> I see, I see thee near.
> I know thy hurried step, thy haggard eye:
> Like thee I start, like thee disordered fly.

"The third main passion which issues from the common stock of *desire*, I have said, is *emulation*. This, when properly attempered, and connected with what have already appeared to be the social affections, is one of the noblest and most valuable emotions that actuates the human heart. It commences early, and often accompanies us to the closing scene of life. It inspirits the play of the infant, the task of the school-boy, and the busy career of the man. It gives health and vigor to the first, applause and distinction to the second, and riches and honor to the third. But emulation is often connected with the selfish affections; and in this case it degenerates into rivalry, or ungenerous strife to equal or surpass a competitor; or into envy, which is a mixture of emulation and hatred, where there is not a chance of success.

"The antagonist passion to desire is *aversion*, which has also, like desire, different degrees of intensity, and a family of diversified characters, though in neither respect so numerous or complicated as the former.

"It not unfrequently unites itself to *pride*, and produces the jaundiced family of *scorn*, *contempt* and *disdain*; the last of which is thus described by Spencer:

> His looks were dreadful, and his fiery eyes,
> Like two great beacons, glared far and wide,
> Glancing askew, as if his enemies
> He scorned in his overweening pride;
> And stalking stately, like a crane did stride
> At every step upon the tip-toes high;
> And all the way he went, on every side
> He gazed about, and stared horribly
> As if he, with his looks, all men would terrify.

"Aversion, combined with a quick sense of being wronged, whether real or imaginary, becomes anger; anger, when violent or ungovernable, is denominated rage and fury; and, when stimulated by a determination to retaliate, it assumes the name and shape of revenge. Hatred is only aversion advanced to a higher degree; and hatred, colleagued with a fixed and clandestine desire to injure, degenerates into malice; the foulest, most despicable, and most devilish of all the passions that can harrass an intelligent being, and the most opposite to the character of divinity; for God is love, and the stamp of benevolence is imprinted on every part of creation.

> "What boundless beauties round us are displayed;
> How shines the Godhead mid the darkest shade!" C.

THE MOON, SIGNS, &c.

MR. TUCKER—I have already informed you how small and unpromising a field I have to work in, yet I see by your list of acknowledgments that some places many times as populous as this, have as yet furnished you a smaller list of subscribers than this. It is really surprising, that where the subject is presented to them, there can still be found thousands who will refuse the trifling sum of fifty cents for your paper, and yet feel no reluctance at laying out a like amount for that which is of no use to soul or body, not *per annum*, but *weekly*, or oftener. Yet such is the fact. But I see by a notice in your last, that your subscription list has increased to a goodly number, and I rejoice at it. I had much rather see a well established agricultural or other scientific journal receive an addition of a few thousand subscribers, than to see a new paper started with as large a list, and for this reason, the greater the number who employ a common medium of inter-communication, the greater will be the advantage to those who employ it; which truth is so self-evident as to need no demonstration.

In forwarding to you the names of some new subscribers, I will employ a portion of my sheet in suggesting to you the propriety of furnishing in your paper some *facts* regarding the THE MOON; and if you think my remarks calculated to serve any useful purpose, you can give them publicity, or you can, without fear of offence, lay them aside.

I presume you frequently hear remarks like one an intelligent neighbor lately made to me—it was this: "My pigs all did badly last year, after being operated upon *when the sign was wrong*." Now, how many of those who thus consult the *signs*, do you think know what the word means? I have frequently put the question, but none ever knew, and for this reason—none who do know, will pay any regard to them. At least, such is my opinion.

I propose, in as brief a manner as practicable, to give an explanation of the term, and show the origin of the superstition connected therewith.

For the purpose of conveniently calculating the motion of the heavenly bodies in their orbits, astronomers at a very early day divided the circle in which they all appeared to move around the earth, into twelve equal parts, and called each part a *sign;* each sign was divided into thirty parts, called degrees, &c. A particular part of the heavens was chosen to reckon from, viz: that point in which the sun appears when crossing the equator on the 21st of March. The first sign, reckoning from that point in the direction the sun moves, was called *Aries*, the second *Taurus*, &c. The sun being a year in going through the whole, is consequently about a month in each sign. The moon being 27 days, 7 hours, 42 minutes, 57.803 seconds, in going through the signs, would be, if her motion were perfectly uniform, 2 days, 6 hours, 39 minutes, 25 seconds, in each sign.

In those early days, each and all of the planets were believed to have very much to do with the affairs of man in this life; so much so, that astrologers, who made the heavenly bodies their study, were consulted on all occasions, even upon the birth of a child, to predict, according to the stars, its destiny. At the present time, this imaginary science has comparatively few votaries, except so far as the moon is concerned; and as the place or sign of the moon is still the oracle of so many, I will mention the astrological theory in regard to its influence upon the bodies of men and animals.—When the moon entered the first sign, Aries, it was imagined that her influence was directed to the head; disposing it more readily to take an inflammation from injuries, &c. As the moon progressed through the signs, her influence extended downwards until upon her passing through the twelfth, her mysterious power over the body went out at the feet, again to enter the head and go through as before. This superstition is far more absurd than that which leads to the consultation of the moon in regard to weather, vegetation, &c., at the *quarters*, *new* and *full;* for at these times the natural law of attraction may be not very unreasonably supposed to have an influence upon the atmosphere, as well as upon the body of the earth causing tides. For the benefit of those who wish to make experiments upon this point, I will state a few facts which may serve as data.

1st. The moon, when in *Apogee*, or in the farthest point of her orbit from the earth, (for her orbit is eliptical,) is about 253,000 miles distant. When in *Perigee*, or nearest the earth, only 227,000 miles. The time occupied by her in passing from one of these points to the other is 13 days, 18 hours, 39 minutes, 17.441 seconds, which is nearly three hours longer than she occupies in passing through six signs. Consequently her place in the signs of the Zodiac, and her distance from the earth, can have no fixed relation to each other.

2d. The earth at one part of its orbit is 4,000,000 miles nearer the sun than when in the opposite part. It is 25 minutes and 9.8 seconds more than a year in passing from its apogee to apogee again. It is nearest the sun at the present time about the first of January.

3d. The nearer two bodies are together, the stronger will be their mutual attraction.

4th. At *new moon* and at *full moon*, the *sun, earth* and *moon* are in a right line; the earth being in the middle at full moon, and then the tides in the ocean rise high; highest of all if the sun and moon are both in *perigee*.

5th. At the *quarters*, the lines of attraction of the sun and moon meet on the earth at right angles; one acting in a measure against the other, and then the oceanic tides are low; lowest of all if the moon is in *apogee*.

How extensive is the operation of these natural causes, I cannot pretend to say; and fearing I have already wearied your patience, I will close. W. R. P.

Miltonville, Wood Co., Ohio, May 22, 1839.

P. S. A severe frost on the night of the 3d of May, has cut off all the fruit in this section. Apple trees had just dropped the blossom. Some fields of corn were several inches high, and shared the same fate.

HILLING PLANTS.

Mr. Tucker—I have seen in the columns of the Farmer, and the Cultivator, considerable written on the subject of hilling plants, particularly potatoes and corn, and the conclusion to which the writers have generally arrived, seems to have been that the practice was injudicious, and should be abandoned. To this conclusion I give my assent, so far as corn is concerned; as from the nature of the system of roots, and the manner in which the *braces* are thrown out, it is clear that hilling, by covering the first crop of these upper roots, and starting new ones, exhausts the plant needlessly, as but one set of brace roots are essential to the plants. But unless I am much mistaken, the case is different with the potatoe. In this plant, as every one who has paid attention to it knows, the tuber, or valuable part, does not grow on the root proper, but on shoots protruded from the stalk of the plant, beneath the surface of the earth. To produce good potatoes, and a large crop, the putting forth of these shoots should be encouraged as much as possible; and no way seems so likely to produce this effect, as providing a supply of light fresh earth around the stem, and renewing it as occasion may require. In my opinion, the experience of our best potatoe growers is in accordance with these facts; certainly my own would go most conclusively to show that the more ample the supply of light, rich, *penetrable* earth, furnished the plants, the better usually would be the crop. But it also follows, from my view of the matter, that the greatest care should be exercised, not to disturb any of the first formed shoots, by subsequent earthing; a point to which too little attention is paid in ploughing and hoeing this plant. I have noticed that in potatoe plants grown in hard land, or that were not properly hoed and furnished with a supply of loose earth for the shoots, that they were short and diminutive, the tubers crowded, and usually inferior. A potatoe crowded out of the ground, and exposed to the air in growing, is good for nothing; and where hilling is not practiced, more or less will be in this predicament, if the crop is any thing like a fair one. You will, therefore, permit me, for the reasons given above, to question the propriety of *not* earthing potatoes, though the observance of hilling can well be dispensed with in the culture of corn. Planter.

Preserves and Jelly.

Preparation of molasses for preserving fruit.—Take 8 pounds molasses, bright New Orleans or Sugar House, 8 pounds pure water, 1 pound coarsely powdered charcoal, boil for 20 minutes, then strain through fine flannel, double—put it again in a kettle with the white of an egg, and boil gently till it form a syrup of proper consistence, and strain again.

To clarify Sugar for Sweetmeats.—Break as much as required in large lumps, and put a pound to a half a pint of water in a bowl, and it will dissolve better than when broken small. Set it over the fire, and the well whipt white of an egg; let it boil up, and, when ready to run over, pour a little cold water in to give it a check; but when it rises a second time, take it off the fire and set it by in the pan a quarter of an hour, during which the foulness will sink to the bottom, and leave a black scum on the top, which taken off gently with a skimmer and pour the syrup into a vessel very quickly from the sediment.

To green fruits for preserving or pickling.—Take pippins, apricots, pears, plumbs, peaches, while green, for the first, or radish-pods, French beans for the latter, and cucumbers for both processes: and put them with vine-leaves under an oven, into a *block-tin* preserving pan, with spring water to cover them, and then the tin cover to exclude all air. Set it on the side of a fire, and when they begin to simmer, take them off, pour off the water, and if not green, put fresh leaves when cold, and repeat the same. Take them out carefully with a slice; they are to be pealed, and then done according to the receipts for the several modes.

To candy any sort of Fruit.—When finishing in the syrup, put a layer into a new sieve, and dip it suddenly into hot water, to take off the syrup that hangs about it; put it on a napkin before the fire to drain, and then do some more in the sieve. Have ready sifted double refined sugar, which sift over the fruit on all sides till quite white. Set it on the shallow end of seives in a light warm oven, and turn it two or three times. It must not be cold till dry. Watch it carefully, and it will be beautiful.

To preserve Strawberries whole.—Take equal weights of the fruit and double-refined sugar; lay the former in a large dish, and sprinkle half the sugar in fine powder over; give a gentle shake to the dish, that the sugar may touch the under sides of the fruit. Next day make a thin syrup with the remainder of the syrup with the remainder of the sugar, and instead of water, allow one pint of red currant juice to every pound of strawberries; in this simmer them until sufficiently jellied.

To preserve Strawberries in Wine.—Put a quantity of the finest large strawberries into a large gooseberry bottle, and strew in three large spoonfuls of fine sugar; fill up with Maderia wine, or fine sherry.

Salubrious qualities of the Strawberry.—Every friend to the fair will be glad to diffuse the knowledge of a pleasant dentrifice, and infallible sweetner of the breath. The common strawberry in a ripe state, when rubbed upon the teeth and gums, has these most agreeable influences, and becomes more efficacious if eaten freely. The celebrated Linnæus cured himself of gout by persevering in a regimen of strawberries.

To preserve Currants for Tarts.—Put a pound of sugar into a preserving pan, for every pound and a quarter of currants, with a sufficient quantity of juice of currants to dissolve the sugar; when it boils, skim it and put in your currants, and boil them till they are very clear. Put them in a jar, cover them with white paper dipped in brandy, and keep them in a dry place.

To preserve Raspberries.—Pick your raspberries in a dry day, just before they are fully ripe; lay them on a dish, beat and sift their weight of fine sugar, and strew it over them. To every quart of raspberries, take a quart of red currant jelly, and put to it its weight of fine sugar; boil and skim it well, then put in your raspberries, and give them a scald. Take them off and let them stand for two hours; then set them on again, and scald until they look clear.

To preserve Pears, Plums, Damsons, &c. for Tarts, and Pies.—Gather them when full grown and just as they begin to turn. Pick one third of the largest out and put to them as much water as will cover them, boil and skim them. When the fruit is boiled soft, strain it through a coarse sieve, and to every quart of this liquor put a pound and a half of sugar; boil and skim it, and then throw in your fruit; just give them a scald, take them off the fire, and when cold put them into bottles with wide mouths, pour your syrup over them, lay a piece of white paper dipped in sweet oil over them, and cover tight.

Currant Jelly for sickness.—Pick your currents very carefully, and if it be necessary to wash them, be sure they are thoroughly drained. Place them in a stone jar, well covered, in a pot of boiling water. When cooked soft, strain them through a coarse cloth, add one pound of fine Havana sugar to each pound of the jelly, put it into a jar and cover as above. Or you may break your currants with a pestle and squeeze them through a cloth. Put a pint of clean sugar to a pint of juice, and boil it very slowly, till it becomes ropy.

To dry Cherries the best way.—To every five pounds of cherries stoned, weigh one of sugar double-refined. Put the fruit into the preserving pan with *very* little water, make both scalding hot; take the fruit out and immediately dry them; put them into the pan again, strewing the sugar between each layer of cherries; let it stand to melt; then set the pan on the fire, and make it scalding hot as before; take it off, and repeat this thrice with the sugar. Drain them from the syrup; and lay them single to dry on dishes, in the sun or on a stove. When dry, put them into a sieve, dip it into a pan of cold water, and draw it instantly out again, and pour them on a fine soft cloth; dry them, and set them once more in the hot sun, or on a stove. Keep them in a box, with layers of white paper, in a dry place. This way is the best to give plumpness to the fruit, as well as color and flavor.

Cherry Jam.—To twelve pounds of Kentish or duke cherries, when ripe, weigh one pound of sugar; break the stones of part, and blanch them; then put them to the fruit and sugar, and boil all gently till the jam comes clear from the pan. Pour it into China plates to come up dry to table. Keep in boxes with white paper between.

Currant Jam, black red or white.—Let the fruit be very ripe, pick it clean from the stalks, bruise it, and to every pound put three quarters of a pound of loaf-sugar; stir it well and boil half an hour.

Calf's feet Jelly.—Boil two feet in two quarts and a pint of water till the feet are broken and the water half wasted; strain it, and when cold, take off the fat and remove the *jelly* from the sediment; then put it into a saucepan, with sugar, raisin wine, lemon juice to your taste, and some lemon-peal. When the flavor is rich, put to it the white of five eggs well beaten, and their shells broken. Set the sauce-pan on the fire, but do not stir the jelly after it begins to warm. Let it boil twenty minutes after it rises to a head; then pour it through a flannel jelly-bag, first dipping the bag in hot water to prevent waste, and squeezing it quite dry. Run the jelly through and through until quite clean; then put it into glasses or forms.

The following mode will greatly facilitate the clearing of jelly. When the mixture has boiled twenty minutes, throw in a tea-cupful of cold water, let it boil five minutes longer; then take the saucepan off the fire covered close, and keep it half an hour; after which it will be so clear as to need only once running through the bag, and much waste will be saved.

Observe, feet for all jellies are boiled so long by the people who sell them, that they are less nutritious: they should only be scalded to take off the hair. The liquor will require greater care in removing the fat, but the jelly will be far stronger, and of course allow more water. *Note:* jelly is equally good made of cow-heels nicely cleaned; and as they bear a less price than those of calves, and make a stronger jelly, this observation may be useful.

Orange Jelly.—Grate the rind of two Seville and two China Oranges, and two lemons, squeeze the juice of three of each, and strain, and add the juice of a quarter of a pound of lump sugar, and a quarter of a pint of water, and boil till it almost candies. Have ready a quart of isinglass jelly made with two ounces; put to it the syrup, and boil it once up; strain off the jelly and let it stand to settle as above, before it is put into the mould.

Hartshorn Jelly.—Simmer eight ounces of hartshorn shavings with two quarts of water to one; strain it, and boil it with the rinds of four China oranges and two lemons pared thin; when cool, add the juice of both, half a pound of sugar, and the whites of six eggs beaten to froth; let the jelly have three or four boils without stirring, and strain it through a jelly bag.

Cranberry Jelly.—Make a very strong isinglass-jelly. When cold, mix it with a double quantity of cranberry juice, pressed as directed for dressing cranberries (*see preserves;*) sweeten and boil it up; then strain it into a shape.

The sugar must be good loaf, or the jelly will not be clear.

Cranberry and Rice Jelly.—Boil and press the fruit, strain the juice and by degrees mix it into as much ground rice as will when boiled, thicken to a jelly; boil it gently, stirring it, and sweeten to your taste. Put it in a basin or form, and serve to eat as the afore-directed jelly, with milk or cream.

Apple Jelly to serve at table.—Prepare twenty golden pippins; boil them in a pint and a half of water from the spring, till quite tender; then strain the liquor through a colander. To every pint put a pound of fine sugar, add grated orange or lemon, then boil to a jelly.

Currant Jelly, red or black.—Strip the fruit in a stone jar and strew them in a sauce-pan of water, or by boiling it on the hot hearth; strain off the liquor, and to every pint weigh a pound of loaf-sugar; put the latter in large lumps into it, in a stone or China vessel, till nearly dissolved: then put it in a preserving-pan; simmer and skim as necessary. When it will jelly on a plate, put it in small jars or glasses.

Tincture of roses.—Take the leaves of the common rose place them, without pressing them, in a botte, pour good spirits of wine upon them, close the bottle, and let it stand until it is required for use. This tincture will keep for years, and yield a perfume little inferior to otto of roses; a few drops of it will suffice to impregnate the atmosphere of a room with a delicious odor. Common vinegar is greatly improved by a very small quantity being added to it.—*German paper.*

THE HORSE.

Though we have now machinery that surpasses this animal in speed, we are not yet ready to abandon him and set him adrift. Other people may prefer the camel or the mule, but New England farmers know of no servant to be compared with the horse.

For the heavy draught, or for the race; for a ride of pleasure, or for a tour into the rough interior of our country, the horse is our best companion and helper.—We could hardly estimate his worth but by his loss.

This animal is often abused through wantonness or carelessness; but still more often injured for want of due consideration of the proper mode of treating him.

Within a few years, it has been customary for drivers of stages in our neighborhood to give their horses meal in their water, when they only stopped for a short time in the middle of the day. It was then not uncommon for horses when driven no faster than at present, to fall suddenly dead in the harness. On opening the animal, the meal would be found undigested and formed into a hard cake in the stomach.

We believe this practice is now wholly abandoned. There is a very prevalent idea, that it is injurious to give grain to the animal when he is warm. Now, we have never known any injury to arise from this practice.—There is no more danger of injury to the horse than to ourselves by eating a hearty meal when warm. And who ever heard of a man killing himself with a hearty dinner, because he eat it when he was fatigued or heated?

It is hard driving—violent exercise—*after eating* hearty food that causes pain, and often death.

Let a man but reflect on what has proved injurious to himself, and he will rationally conclude what treatment is most likely to injure his beast. Let him eat a hearty meal, then run, or use any very violent exercise immediately after, and he will be at no loss in conjecturing what must be the danger of furiously driving a beast after a hearty dinner.

It is hard driving immediately after eating grain that kills the horse, and we venture to assert, that not an instance can be shown in which he has sustained injury from eating grain, merely because he was warm. People should reflect and reason more on this subject.

Horses that travel and labor violently, as in stages and fast chaises, should eat their grain at night. When laboring moderately on a farm, it is not so material when their heartiest food is given, for horses are not liable to be injured in any gear when they are only driven on the walk.

But we have known many men, prudent in most matters, yet guilty of stuffing their horses with grain in the morning, just before starting on a journey! They gave no grain the night before, reserving for the starting hour the heartiest food for the beast!

On a journey we have long been in the habit of giving our horse his grain at night. We give it as soon as he is rubbed down and put to the stable, and we have never found it injured him.

How absurd, to let your horse stand for hours, after a day of violent exercise, to chop up his own fodder and attempt to appease his hunger on hay—often poor hay, not fit to be fed out to young cattle.

Give the horse half a bushel of oats, or one peck of corn, if he has been used to grain, as soon as you lead him into the stable, and he will fill himself in one hour or two and be willing to lie down and enjoy a nap, even before you retire to rest yourself.

In any part of the country, if you see the grain put into the manger, you may be pretty sure the hostler has not forgotten his duty.—*Boston Cultivator.*

To Salt Butter.

Beat well together in a mortar, half a pound of common salt and 4 oz. loaf sugar. To every pound of newly made butter (the milk being well drawn off by beating,) put an ounce of the mixed powder; incorporate it well and put the butter in pots for keeping. In about a month—not before—it will be fit for use; and will continue for ten years as good as butter newly salted. Just try it.—*Boston Cultivator.*

ENCOURAGING.

According to the Boston Courier, the three great Seed Establishments and Agricultural Warehouses in Boston, this spring, have been continually crowded with customers—so much so, that no lounger could find a place secure from a pitchfork. This circumstance is encouraging, as indicating an increasing interest in the business of terraculture. Indeed, we suppose very much more land is put under cultivation in New England than ever was improved in a single season before. And there is another thing about it peculiarly gratifying. Whereas agriculture was *once* thought beneath the dignity of a gentleman, the idea begins to prevail that no man can be a true gentleman who does not engage in it. The business is becoming honorable in the first degree. This is right. Those men who live on their industry, without producing any thing themselves—who lead idle lives, and think to secure attention by the magnificence of their dress and equipage, have no claim to honor or respect. They should be set down as properly belonging to the lowest, because the least useful classes of society.—*Maine Cultivator.*

Management of Heifers.

As there are many young heifers about to calve, we deem it our duty to offer a few words of advice to their owners upon the subject of their treatment. As the size of cattle depends in a great measure upon whether they are fed well or ill the first year; so to a considerable extent, does the milking qualities of a cow *depend* upon how she may be managed while carrying her first burthen. To us nothing is more consistent with reason than that if we desire to make a deep milker, the animal must be pushed during the last six or seven weeks of its enciency, with rich and succulent food. *Slops* calculated to make the milk flow freely, must be given them. Besides the advantage of having the beast put in good heart, and thereby enabled to go through her labor in strength and ease, the milk vessels become distended, volume is added to the udder, and capacity thus given to hold a large quantity. By tub feeding, docility is imparted to the young creature, and she becomes much easier handled by the milker. Indeed, in whatever light we view the subject, the most solid benefits are likely to result from the treatment we have prescribed, and upon the score of enlightened economy we are sure that the owner will always find his interest promoted by being generous towards his milch cattle, and especially to those whose character is about being formed.—*Farmer and Gardener.*

Fall Potatoes.

If you have not already done so, get your ground ready, and put in your fall crop of potatoes, as in most instances the earlier they are in, the greater certainty there is that you will make a good crop. In the preparation of your ground, be sure to pulverise it well, and in putting in your potatoes, be liberal with your manure, and recollect that the longer and stronger that may be, the better it will prove for your crop.—*Far. & Gar.*

Wool Growers, Look Out!

Manufacturers have already begun to cry down the price of wool. You have your remedy: keep the wool on hand until they offer fairly. Old wool is not so plenty but that the new will be in demand, and the merchant does not say that "clouths are declining." Again we say, *look out! !—N. E. Farmer.*

Agriculture

Is the most ancient, the most honorable, and the most useful of arts; by it the whole human race are fed and clothed; and it is supposed that at least three fourths of the inhabitants of the earth are directly or indirectly engaged in it.—*Farmers' Cabinet.*

Clogs to Agriculture.

The greatest clogs to improvements in agriculture are indolence, ignorance, and self conceit; wherever their influence extends, they paralyze the very earth, and produce sterility.—*Boston Cultivator.*

To make Copying Ink.

Add to common ink a sufficient quantity of sugar to make it glutinous when dry; then put a piece of damp, thin, unsized paper on it, and press it with a warm smoothing iron, which will copy the writing.—*Yankee Farmer.*

TO SILK GROWERS.—A Treatise on the Mulberry Tree and Silkworm, and on the Production and Manufacture of Silk, embellished with appropriate engravings, a new work by John Clarke, containing pp. 366, just published and for sale at 12, Exchange-st., by [may11 4t*] WM. ALLING.

Seasonable Seeds.

GENUINE Early Dutton Corn, Early Red Blazed do., Yellow Field Pumpkin, Buckwheat Field Beans. Also, nearly all other kinds of seeds, and machines for sowing them, on hand as usual at the Rochester Seed Store. [may18] M. B. BATEHAM.

Buckwheat and Turnip Seeds.

INDIAN, and Common Buckwheat, and TURNIP SEEDS of all kinds, including a good supply of genuine English Purple-top RUTA BAGA. Also on hand as usual nearly all kinds of Garden and Field Seeds, together with machines for sowing them.

M. B. BATEHAM,
june 1w&m1t Rochester Seed Store.

Town's Spelling Book.

THIS Work has been adopted by the Grammar School of Columbia College, under Prof. Anthon; by the Geneva Lyceum; the Rutgers Institute; Albany Academy, &c. The Schools in the New England States have introduced it, as far as it has been seen. 110,000 copies (we learn from the publisher,) have been called for since last October. We give Prof. Anthon's notice of the work. "I have examined Town's Spelling Book with considerable care, and have *every reason* to be pleased with the work. So far SUPERIOR is it, in fact, to other Spelling Books that I feel *no hesitation whatever* in recommending it to general patronage. CHARLES ANTHON.
may24 w&m 1t*

Agricultural Warehouse and Seed Store.

79 *Barclay-street, New-York.*

AT this old established stand, the subscribers take pleasure in announcing to the public, that they have made extensive arrangements to accommodate farmers in all articles connected with husbandry, viz:—Agricultural implements, a full and fresh supply of Field and Garden Seeds, Fruit Trees, Durham Cattle, Chinese and Berkshire pigs, 10,000 Morus multicaulis Mulberry trees; Publications on Rural subjects, &c.

Published here the Rural Library, S. Fleet, editor, a few copies of 1st vol. for sale. The object of this work is to constitute a Library at the least possible expense. 2d vol., commencing with Professor Low's Elements of Practical Agriculture, with nearly 250 fine engravings; subscription $3. Subscriptions received for the Genesee Farmer, Cultivator, &c. &c. J. W. WEAVER & CO.
April 20-wmly 76 Barlay-st, New-York

Morus Multicaulis.

THE subscriber has 5 000 genuine Morus multicaulis plants healthy and thrifty, which he offers for sale on reasonable terms. Having the advantage of water communication through the Cayuga Lake and canals, he can box and forward them to any place desired.

☞ Orders *post paid* will meet immediate attention.
Aurora, Cayuga co., April 27, 1839. L. H. GORHAM.

Great and Timely Arrivals!

AT THE ROCHESTER SEED STORE.—The subscriber is happy to inform his friends and customers, that he has just received direct from England, a very large supply of imported Seeds, of such kinds, and in such quantities, as will meet the demands of the public, and of such quality as cannot fail to give satisfaction. Among them are,

1,500 lbs. English Purple Top Ruta Baga,
800 lbs. English and Scotch assorted Turnep,
650 lbs. Mangel Wurtzel,
300 lbs. French White and Yellow Sugar Beet,
175 lbs. Long Orange, and Altringham Carrot,
150 lbs. Yellow Dutch, and White Portugal Onion,
500 lbs. Cabbage, Cauliflower, Broccoli, and Radish,
450 lbs. White Dutch Clover, Trifolium Incarnatum.

Also—New Orchard Grass, Pacay's perennia and Italian Rye Grass, Spring Tares, Potatoe Oats, Winter Oats, many new varieties of Peas and Beans, together with a multitude of smaller articles.

Also—Nearly one hundred varieties of the choicest English FLOWER SEEDS. (These will speedily be put up in small papers, price 5 cents each, 50 cents per dozen.)

Also—Just received, a good supply of THORBURN'S CHINESE TREE CORN, and ROHAN POTATOES.

Orders already received will be immediately attended to.

All orders from a distance must contain a remittance, or good reference in this city.

☞ Agents will receive new supplies as soon as possible.
May 1, 1839. M. B. BATEHAM.

☞ *Oswego Agency.*—M. B. EDSON, Druggist, Oswego, is Agent for the Rochester Seed Store. A good assortment of Seeds may be found there.

Fruit Trees for Sale.

THE subscriber respectfully informs his friends and the public that he has for sale at his Nursery in Rochester, Monroe county state of New York, a large quantity of Fruit Trees, grafted and inoculated with the most approved kinds, now fit for transplanting, which he will sell on the most reasonable terms.

April 15, 1838. SAMUEL MOULSON.

N. B. Cash will be paid for a few thousand two years old APPLE TREES.

Monroe Horticultural Garden and Nursery,

GREECE, MONROE COUNTY, N. Y.

THIS establishment now comprises over 20 acres, covered compactly with trees and plants in different stages of their growth.

The subscriber offers to the public a choice selection of Fruit Trees, of French, German, English and American varieties, consisting of Apples, Pears, Plums, Peaches, Cherries, Apricots, Nectarines, Quinces, Currants, Gooseberries, Raspberries Grape Vines, Strawberries, Ornamental Trees, Shrubs, Plants, Hardy Roses, Vines, Creepers, Herbaceous Perennial Plants, Bulbous Roots, Splendid Peonies, Double Dahlias, &c. &c.

Also, a large collection of Green House Plants, of choice and select varieties, in good condition.

Orders respectfully solicited. Trees and Plants, when ordered, are carefully selected and faithfully packed, and if desired, delivered on the Canal, one mile from the Nursery, or at Rochester.

Orders for Mr. Rowe's Nursery received by the publisher of this paper.

Catalogues will be sent to every applicant, gratis, or may be had by calling at the office of the Genesee Farmer
April 1, 1838. ASA ROWE.

Morus Multicaulis.

A FINE lot for sale; also, a few English Hawthorn of large size, a very desirable lot, by S. MOULSON,
February 27. Front-street.

Thorough Bred Improved Short Horn Cattle.

THE subscriber has recently taken charge of the superior stock of Short Horn Cattle bred by L. F. Allen, Esq., on his farm at Grand Island, in the Niagara River. The original stock from which these have been produced, were selected from among the best animals in the country, and several of them were imported direct from England.

As a milking stock, the cows of this herd will challenge competition with those of any other in the United States; several of them being extraordinary milkers, and all of them good. For the making of butter, they have been thoroughly tested, and their dairy excellence is remarkable. Their value in this particular is fully retained in the grade animals descended from the bulls of this herd, which have thus far, without exception, proved the best of milkers. This excellence, possessed in reality, by no cow, so much as in the pure Short Horn, has been too much neglected by both English and American breeders, and their value as dairy stock, thus under-rated. In addition to the above, are a select herd of DEVON SHORT-HORNS, bred from two choice, pure, Devon cows, directly descended from the celebrated herd of Mr. Cooke, of Holkham, Eng. These beautiful animals are a cross of different degrees with the pure "Improved Short Horn," without any admixture of common blood; and are as perfect combinations of excellence in color, hardihood, symmetry, and size as can be found.

As the present breed of all ages, has now attained the number desirable to be kept on the farm, (upwards of forty,) a part of them are offered for sale.

Application may be made either personally, or by letter post paid, to Samuel Allen, Esq., of Black Rock, N. Y., or to the subscriber on the farm, 5 miles below, at which a ferry connects with the main shore on the Erie Canal LEWIS G. COLLINS.
Grand Island, May 15, 1839.
P. S. A few fine grade animals also for sale may25 w1am mtf.